



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

DEPARTMENTS.

SOLUTIONS OF PROBLEMS.

ARITHMETIC.

98. Proposed by J. SCHEFFER, A. M., Hagerstown, Md.

A poor man borrowed \$20 which he repaid in eleven monthly installments of \$2 each; what was the annual rate of interest (reckoned as simple interest)?

Solution by G. B. M. ZERR, A. M., Ph. D., Professor of Natural Science, Chester High School, Chester, Pa.

Here we use the same formula we have used often before in the MONTHLY:

$$P = \frac{Pr(1+r)^n}{(1+r)^n - 1}.$$

Where $p=2$, $P=20$, $n=11$.

$$\therefore 2(1+r)^{11} - 2 = 20r(1+r)^{11}. \quad \therefore 2(1+r)^{11}(1-10r) = 2.$$

$$\therefore r = .016 \text{ nearly. } 12r = .192 = 19\frac{1}{5}\% \text{ nearly.}$$

$$\therefore 19\frac{1}{5}\% = \text{rate of interest.}$$

Also solved by ELMER SCHUYLER.

99. Proposed by B. F. FINKEL, A. M., M. Sc., Professor of Mathematics and Physics, Drury College, Springfield, Mo.

If 300 cats kill 300 rats in 300 minutes, how many cats will kill 100 rats in 100 minutes?

I. Solution by the PROPOSER.

1. If 300 cats kill 300 rats in 300 minutes,
2. 1 cat will kill 1 rat in 300 minutes,
3. 1 cat will kill 100 rats in 3000 minutes, and
4. 300 cats will kill 100 rats in 100 minutes.

II. Solution by CHARLES C. CROSS, Libertytown, Md.

If 300 cats catch 300 rats in 300 minutes, then 1 cat will catch 300 rats in 9000 minutes, or 1 cat will catch 100 rats in 3000 minutes.

Hence 300 cats will catch 100 rats in 100 minutes.

Also solved by G. B. M. ZERR, FREMONT CRANE, and ALOIS F. KAVORIK.

ALGEBRA.

86. Proposed by J. MARCUS BOORMAN, Consultative Mechanician, and Counsellor at Law, Woodmere, Long Island, N. Y.

Solve $x^2 + yz = 16 \dots\dots (A)$; $y^2 + xz = 17 \dots\dots (B)$; $z^2 + xy = 22 \dots\dots (C)$, for all the roots.

I. Solution by G. B. M. ZERR, A. M., Ph. D., Professor of Mathematics and Science in Chester High School, Chester, Pa., and Prof. J. SCHEFFER, A. M., Hagerstown, Md.

Let $y = vx$, $z = wx$.

$$\therefore x^2 + vwx^2 = 16, v^2x^2 + wx^2 = 17, w^2x^2 + vx^2 = 22 \dots\dots (1, 2, 3).$$